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#	Reviewer Name/ Org./Office Symbol	Page No.	Paragraph #	COMMENT / RATIONALE	PROPOSED RESOLUTION(S)
	B Locher L-3 Comm. Avionics Systems	8	1.4.3.6	The Europeans mandate SI operability and single it out as a requirement. It is not clear that designing the Mode-S per any recent set of MOPS will make the design compliant. It is easy to infer that the SI requirement in the European Mode-S mandate is some additional requirement , when it is not	**Add note at end of 1.4.3.6 Additional Features that reads:** ***Note:*** *Level 2, and above, transponders that are designed according to this document will properly handle SI codes for the European mandate*
	B Locher L-3 Comm. Avionics Systems	8	1.4.3.6	Tie in the unwanted power output requirements into the "Additional Features" for collision avoidance systems	**Add additional text to the first bullet:** Installations in large……receivers and transmitting channels. Transponders installed with collision avoidance systems must also meet the unwanted power requirement of 2.2.3.3
	B Locher L-3 Comm. Avionics Systems	9	1.6.2	"Ambient conditions" is not a good word choice. Ambient means surrounding conditions. When a unit is being temperature tested to -55 degrees, the ambient temperature is -55. I would change to room temperature.	Detailed test procedures for hardware qualifications ~~in ambient conditions~~ at room temperature are specified in subsection 2.4 The test procedures in subsection 2.3 are to be run on the equipment over the various environments. The test procedures in subsection 2.5 ……
	B Locher L-3 Comm. Avionics Systems	135	2.3.1		**Add Note at end of 2.3:** ***Note:*** *The tests in section 2.3 are similar to the tests defined in section 2.4 except some of the tests are modified or scaled back to allow more efficient testing of the unit over the various environments.*

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	B Locher L-3 Comm. Avionics Systems	155	2.4.2	Additionally, I would add some clarity to the reason for one set of tests in section 2.3 , and another, almost identical set in section 2.4 and make the distinction between the tests	**At end of "2.4.2 Detailed test Procedures " add Note** ***Note:*** *The tests in this section are comprehensive hardware qualification tests that are to be run on the unit at room temperature. The required tests and procedures to qualify the unit over the various environments are found in section 2.3. In general, the tests found in section 2.3 are modified or scaled back versions of those found in section 2.4.*
	B Locher L-3 Comm. Avionics Systems	20	2.2.3.3	There are a lot of collision avoidance systems in the field now that require 1090 reception. Not just TCAS II	**Add Note to section 2.2.3.3 Unwanted Output Power** ***Note:*** *It is recommended that all new transponder designs be designed to meet the -70 dBm requirement. Many collision avoidance systems are available that require 1090 MHz reception.*
	B Locher L-3 Comm. Avionics Systems	34	2.2.12	I disagree with this note. The Europeans, via their mandate, have given direction that non diversity is acceptable for aircraft less that 5700 kg or 250 knots. There is a viable market for non diversity transponders and installations in smaller aircraft, even in the European market, where they are strict about mandating diversity.	**2.2.12 Diversity Operations** **Delete Note:** ~~TCAS operations require diversity operations. The use of diversity is highly recommended for any transponder installation~~ **Add Note:** *The transponder manufacturer should carefully consider US and European rules if a non diversity transponder is being considered for development.*
	B Locher L-3 Comm. Avionics Systems	95	2.2.19.3.1	Add note	**2.2.19.3.1 Diversity** **Add Note:** ***Note:*** *The European Mode-S mandate requires diversity for aircraft >5700 kg or that flies > 250 knots.*

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	B Locher L-3 Comm. Avionics Systems	44	Figure 2_4	I think this is a mistake. In UF=0, The BD field should be called DS field in these figures. ED-73 calls them DS.	**Change:** ~~BD:8~~ to DS:8
		76	2.2.19.1 (Uplink Formats)		~~BD:8~~ to DS:8
	B Locher L-3 Comm. Avionics Systems	76	2.2.19.1	Add note about UF=17 extended squitter	**2.2.19.1 Minimum Level 2 transponder requirements** **Add Note:** ***Note:*** *Extended squitter, DF=17, is required to meet certain European requirements*
	B Locher L-3 Comm. Avionics Systems	55	2.2.14.4.29	Add note to clarify that non-selective lockout means ATCRBS/Mode-S all call lockout	**2.2.14.4.29 PC Protocol** **Add note** ***Note:*** *non-selective all call lockout means either ATCRBS A/Mode-S all call lockout or ATCRBS C/Mode-S all call lockout.*
	B Locher L-3 Comm. Avionics Systems	57	2.2.14.4.33	Make it clear that the airspeed requirement is not for how fast the airplane is flying at that moment, but a one time value entered into the transponder.	**2.2.14.4.33 RI Reply Information , Air to Air** **For codes 10-14** **Add: "**Max" in the description

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	B Locher L-3 Comm. Avionics Systems	58	2.2.14.4.35	I believe this table is a bit confusing. The reason is because of register (BDS 1,7) In reality, if long reply is requested then RR code always defines the BDS1 bits and the RRS are set and need to be read by the transponder. I think that it should be clear that RR=17 means BDS1=1 RR=18 means BDS1 = 2, and it should be clear that just because RR =17, it does not mean that a basic datalink request is being requested, because the transponder may be actually requesting the GICB report which is (BDS 1,7). Also, this note is pointing out that when (BDS 0,0) then the transponder is given the ok to send it AICB message.	**2.2.14.4.35 RR Reply Request** **Continue the note:** *.....not specified by RRS when DI=3 or 7 and RSS* *. If RRS is not set to ZERO the transponder sends the Ground Intitiated Comm B message defined by BDS1 contained in the RR field and BDS2 contained in the RRS field* *For example, when the interrogator requests the GICB report (BDS1=1 BDS2=7), the RR bit will be set to 17 (which sets BDS1=1) and the RRS field will be set to 7 (which sets the BDS2 field).The transponder, should report its (BDS 1,7) register in this case, not its "basic datalink report" (BDS 1,0).* *The basic data link report is (BDS 1,0) and the flight ID report is (BDS 2,0). In these cases the BDS2 field , defined by RRS will be ZERO and must be read by the transponder as such to ensure a different register was not being requested.* ***Note 2:*** *When the interrogator requests BDS1=0 and BDS2 =0 the transponder sends the appropriate register to complete the Air Initiated Comm B message.*
	B Locher L-3 Comm. Avionics Systems	58	2.2.14.36	Why define the subfield IIS when SD has lots of subfields that are not explained in this paragraph?	**Change "~~b. IIS Subfields"~~** **To** b. SD Subfields SD contains subfields that are defined in section 2.2.19.2.1.1

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	B Locher L-3 Comm. Avionics Systems	86	2.2.19.1.12.5	The Data link capability report is also obtained via a broadcast messages. Also, I think a distinction should be made between the basic data link capability report and the GICB capability report.	**2.2.19.1.12.5 Data Link Capability Report Add to text:** It can also be obtained by the interrogator by requesting the Air Initiated Comm B message in response to a Comm B Broadcast by the transponder. ***Note**: The GICB capability report (BDS1=1, BDS2=7) can only be obtained by a ground initiated Comm B request and is different than the Basic datalink capability report (BDS1=1 BDS2=0).*
	B Locher L-3 Comm. Avionics Systems	86	2.2.19.1.12.7	Is DO-218 the reference point for this format? It would seem that ICAO Annex 10 is?	**Change reference to ICAO Annex 10?**
	B Locher L-3 Comm. Avionics Systems	75	2.2.19 Item f		**Minimum Level 2 Transponder Description** **Add Note:** ***Note:** ICAO Annex 10 Volume III contains the definitions for the data and formats for all the 256 data registers defined by BDS1 and BDS2.*

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	B Locher L-3 Comm. Avionics Systems	68	2.2.18.2.4	When I read this document , a note like this would have saved me some time in understanding	**2.2.18.2.4 Lockout protocol** **Add Note:** ***Note:*** *non-selective lockout refers to an interrogator locking out replies to both ATCRBS(A and C)/Mode-S-all calls from the transponder. Any interrogator, via the PC field in UF=4,5,20,21 can command a transponder to stop replying to these types of all calls. A command by any interrogator to lockout non-selective all calls will lockout replies to* ***all*** *interrogators. (A non-selective lockout can also be accomplished by an interrogator identifying itself as II=0 and using the multisite lockout protocol).*
	B Locher L-3 Comm. Avionics Systems	82	2.2.19.1.9	When I read this document , a note like this would have saved me some time in understanding	**2.2.19.1.9 UM Protocol** **Add Note** ***Note:*** *The multisite protocol is used to handle multisite Air Initiated Comm B messages and is also used to handle multisite lockout.* *The UM field is part of the multisite protocol that deals with Air Initiated Comm B messages. The transponder uses this field to inform any interrogator the specifics as to which interrogator is controlling the closeout of an Air initiated comm. B message from the transponder.*

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	B Locher L-3 Comm. Avionics Systems	60	2.2.14.4.41	When I read this document , a note like this would have saved me some time in understanding	**2.2.14.4.41 Utility message in DF=4,5,20 ,21** **Add Note:** ***Note:*** *The utility message is an integral part of the multisite protocol. When a transponder has been commanded to handle its Air Initiated Comm B messages with this protocol, the UM field gives status as to which interrogator reserves the right to close out the Air Initiated Comm B message.*
	B Locher L-3 Comm. Avionics Systems	88	2.2.19.2	When I read this document , a note like this would have saved me some time in understanding	**2.2.19.2 The Multisite Message Protocol** **Add Note:** *The* ***mutisite protocol*** *covers both of these multisite operation as stated here:* *The mutisite lockout commands are used to command the transponder to stop replying to Mode-S only all call (UF=11) from a particular interrogator without inhibiting those replies from other interrogators with different II/SI numbers. (commands to tell the transponder to stop replying to ATCRBS (A or C)/Mode-S all calls are not handled by this protocol – except when II is set to 0)* *The multisite Comm B commands are used to command the transponder to give control of its Air Initiated Comm B closeout to a specific interrogator, and for the transponder to give status of this control.*

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	B Locher L-3 Comm. Avionics Systems	87	2.2.19.1.12.8	Adding a little clarity to datalink capability report	**2.2.19.1.12.8Updating of the data link capability report** **Add Note:** ***Note:*** *The basic datalink capability report is (BDS1=1, BDS2=0) and is required in all transponders. The GICB capability report (BDS1=1,BDS2=7) is required for some applications. When the (BDS 1,0) register changes a broadcast message takes place. When the (BDS 1,7) register changes , or any other register that has BDS1=1 and BDS2≠0, there is no broadcast message initiated.*
	B Locher L-3 Comm. Avionics Systems	75	2.2.19 Last para of item g	Add clarity	**2.2.19 Minimum Level 2 transponder description** **Item g Add text as follows:** …However, for an Air Initiated Comm B message that is not a broadcast, an individual interrogator can use the multisite protocol to reserve…..
	B Locher L-3 Comm. Avionics Systems	83	2.2.19.1.12	General comment	**2.2.19.1.12 Comm B Protocol** **Add Note** ***Note:*** *The data in the Comm B message is taken from one of the 256 registers in the transponder. These registers are addressed by BDS1 and BDS2 in the interrogation.*

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	B Locher L-3 Comm. Avionics Systems	84	2.2.19.1.12.1	Data Source Designators: The sentence "When Comm B information to be transmitted resides in data sources that are part of the Mode-S installation" is confusing. Furthermore, the BDS code that is referred to in 2.2.14.4.20 b seems to be the content inside a Comm B message that is not directly related to BDS1 and BDS2. This BDS subfield in the message is imbedded so that the interrogator can determine what data is in a Comm B broadcast, and, while in a round about way may be the same, it is not the same. Also, The BDS subfield field is only used in very few Comm B messages so referring to this subfield is squishy. The document seems to treat (BDS 1, 0) and (BDS 2,0) as non-extended data source designators, but I think it is a mistake to not treat these as extended data source designator. The transponder still must decode the RRS field when it is told to send a (BDS1,0) or (BDS 2,0).	**Suggested new text for (Delete all text) and add:** **2.2.19.1.12.1 Data Source Designators** The interrogator sends two data source designators when it is requesting a Comm B reply. BDS1 is contained in the RR field of the interrogation. BDS2 is contained in the RRS subfield of the SD field (when DI = 3 or 7 the SD field is used to request Comm B messages). Together, these two data source designators inform the transponder which data register to put in the Comm B message. The registers (BDS 1,0) and (BDS 2,0) are unique because they are filled by the transponder/transponder installation and are not dependent upon other data sources in the overall aircraft installation. ***Note:*** *when either of these two registers change, the transponder must initiate a Comm B Broadcast*

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	B Locher L-3 Comm. Avionics Systems	53	2.2.14.4.20	Try to add some clarity to MB, especially the BDS subfield.	**Suggested new for text for (Delete all text) and add:** **2.2.14.4.20 MB Message, Comm-B and BDS B definition subfield** a. MB Message, Comm-B This 56 bit (33-88) downlink field contains messages to be transmitted to the interrogator and is part of Comm B replies DF=20,21. The Comm-B message is a transmission of data that is contained in one of 256 registers in the transponder. The register is addressed by two 4 bit address fields , BDS1 and BDS2. Together these two 4 bit fields point to a particular register that contains the pertinent data. This document describes in detail two of these registers (BDS 1,0) and (BDS 2,0) which are special register because the transponder defines the data that is put in these registers. A Comm-B broadcast message is initiated when either of these two registers change. The specific data and formats for the all the 256 registers are defined in other governing documents such as ICAO Annex 10 Vol III. b. BDS B Definition Subfield In broadcast messages the MB contains an 8 bit subfield "BDS" that identifies which data register the MB comes from. This Subfield is required in Comm-B Broadcast messages so that the interrogator can determine which broadcast message the transponder sent. ***Note:*** *Most of the 256 MB fields do not contain the BDS subfield.*

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	B Locher L-3 Comm. Avionics Systems	85	2.2.19.1.12.2		**2.2.19.1.12.2 Extended Data Source Registers** **Change text:** The interrogator can request data to be read out from a ~~source~~ data register more specifically defined….. **Add Note** ***Note:*** *When extended data is requested by the interrogator the RR field is used to define BDS1 and the definitions of the message types in the RR field may no longer apply.*
	B Locher L-3 Comm. Avionics Systems	85	2.2.19.1.12.3		**2.2.19.1.12.4 Air Initiated Comm B** **Add Note:** ***Note:*** *In an Air Initiated Comm B transaction the interrogator sets the register request to BDS1=0 and BDS2=0. When the transponder receives the request to send (BDS 0, 0) the transponder replies by sending the message (data in the particular register) that it needs to complete the Air Initiated Comm B transaction.*
	B Locher L-3 Comm. Avionics Systems	85	2.2.19.1.12.4.1	Make it clear when a Comm B Broadcast is required.	**2.2.19.1.12.4.1 Comm- B broadcast** **Add Note** ***Note:*** *Comm B Broadcasts are required when data in the (BDS 1, 0) or (BDS2,0) changes.*